Project Adjustment Helper

User Manual 06/2015

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Project Adjustment Helper

1 introduction

Project Adjustment Helper is a SCENE plugin developed to adjust projects in an easy and fast way. It accumulates all information needed for JAG3D or rmNetz to calculate the adjustments and imports the results back to SCENE.
As an outcome the gap between double lines decreases or disappears at all. The deviation of objects is decreased as well (fig. 4).
Project Adjustment Helper requires an orientated project.

2 installtion

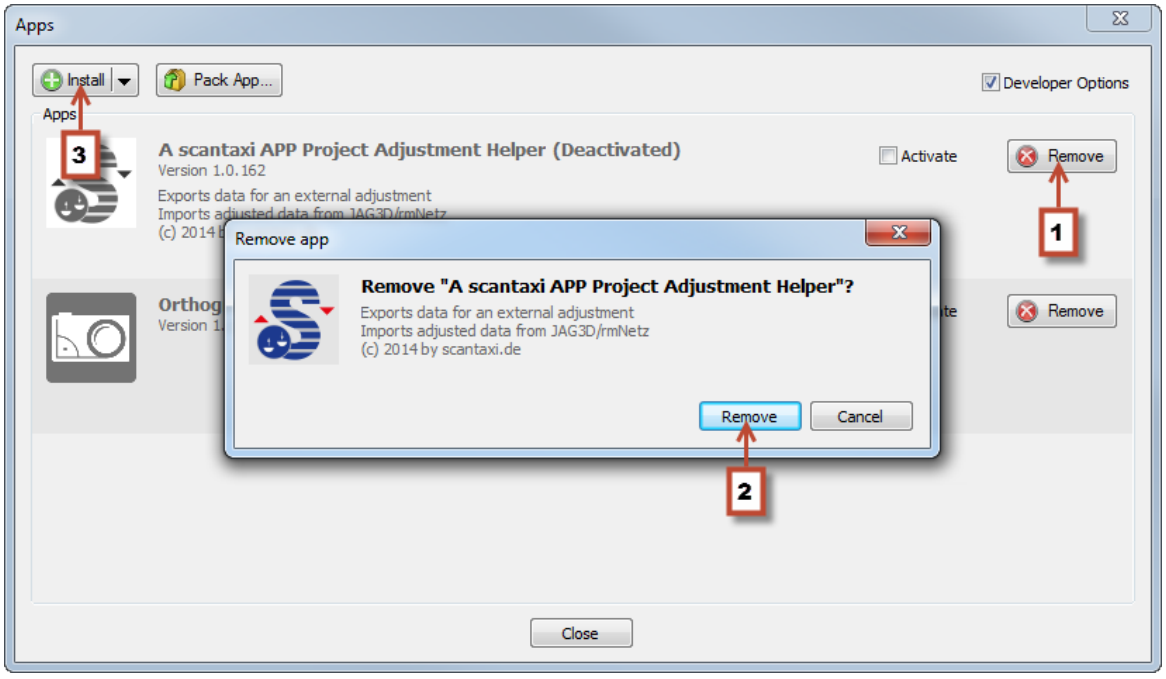

Figure 1: SCENE App Dialog

As part of the installation procedure of the new version, the old version has to be removed (1, 2). Following this, Project Adjustment Helper can be installed via App Manager (3), drag and drop or by double clicking on the app file in the explorer.

scantaxi software: `http://www.scantaxi.de/software.html`
Latest version: `http://www.scantaxi.de/software/PAH.html`

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3 licensing

3.1 license models

Project Adjustment Helper is available as:

- full license
- project-based license

3.1.1 full license

- Updates for versions up to 1.x are included
- See 3.2 for activation process

3.1.2 project-based demo license

- Latest version of Project Adjustment Helper is included
- Every project needs a seperate license

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3.2 activation process

Starting Project Adjustment Helper without a license will open the license dialog (Fig. 2). Within this dialog the following options are available:

- Request and enter full license code (1)
- Create a request file for the current project (2)
- Load the license file for the project received from license@scantaxi.de (3)

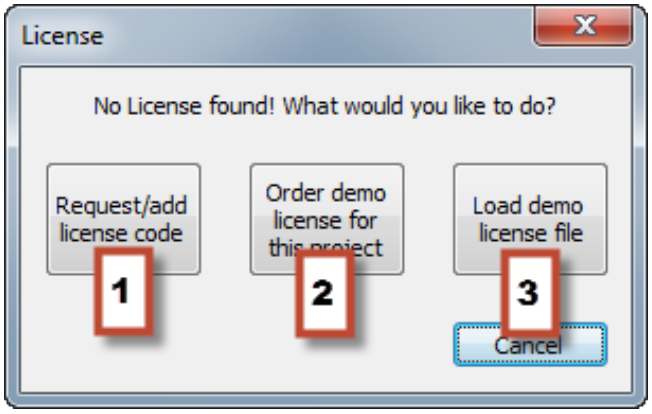

Figure 2: license dialog

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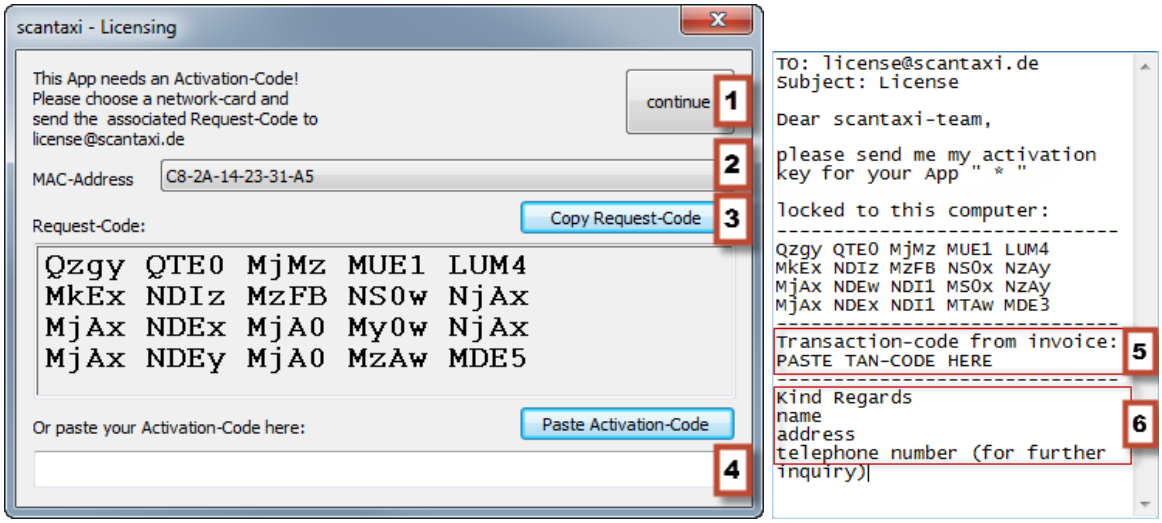
Project Adjustment Helper

3.2.1 request/enter full license code



- Select a MAC-Address (2)
- Press "Copy Request-Code" to get the e-mail body (3)
- Copy clipboard to email
- Enter transaction number from invoice (5) and your contact information (6)
- Send e-mail to license@scantaxi.de
- Paste received activation code (4)
- Activate license (1)

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3.2.2 request/load project-based license

Before the request file can be generated, some personal information must be entered into the personal information dialog box.

After generating the request-file an e-mail must be sent to license@scantaxi.de. Usually the license will be provided within 24 hours and can be loaded via the license dialog box.

Important! The project-based license will work with the scans stored in the project before generating the Request-Code! New Scans will not be accounted for.

The personal information is coded in the request file. All fields must be filled out (Fig. 3) or the request will not be processed.

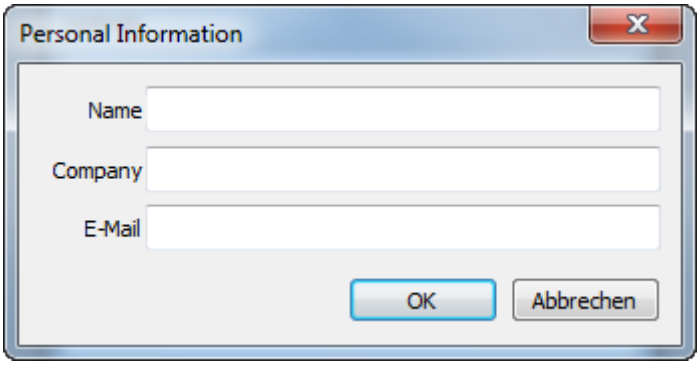

Figure 3: enter personal information

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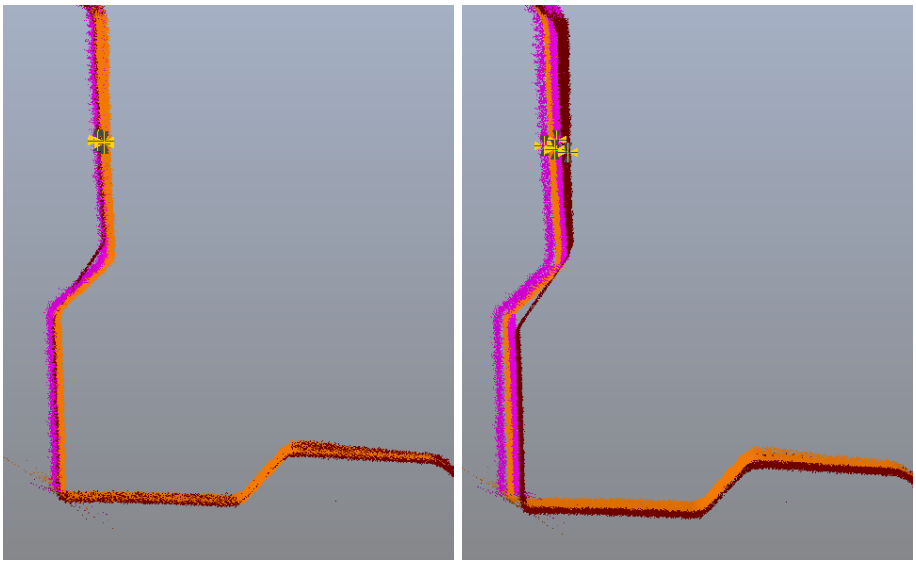
4 workaround

Objectbased orientation can cause double lines or big deviation of objects. To prevent such problems, projects need to be adjusted. In order to adjust small or big projects in SCENE, following steps need to be followed:

- project needs to be orientated
- Project Adjustment Helper generates needed data for adjustment software
- if a forced adjustment is desired, references must be exported into an extra reference file
- import data into adjustment tool (scantaxi recommends using JAG3D as it easy to use and available for free.)
- start adjustment and export the result
- import adjusted data into SCENE



(a) adjusted (b) target based placement

Figure 4: Example adjustment of a container

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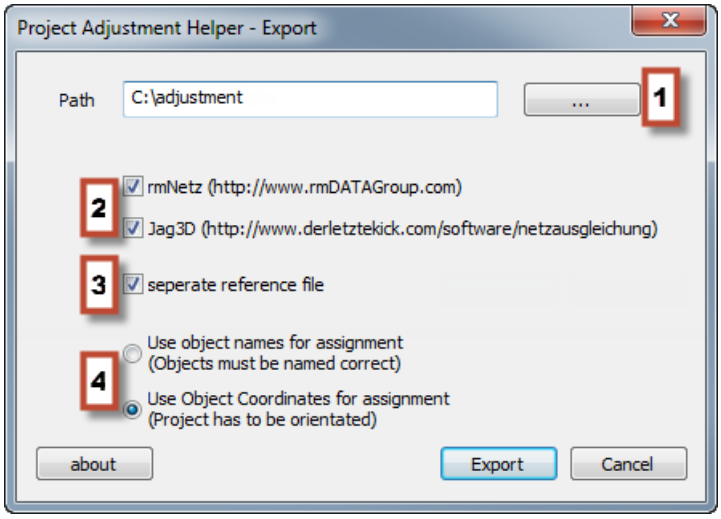
Project Adjustment Helper

5 Project Adjustment Helper - export



1. Choose path
2. Export data for rmNetz and or Jag3D (Project Adjustment Helper will generate subdirectories for each checked option)
3. Generate an extra reference file (*.rmk)
4. Project needs to be orientated correctly. Object assignments can be done by correct named objects or object coordinates.

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Project Adjustment Helper

6 Project Adjustment Helper - adjustment

6.1 Jag3D

6.1.1 Project Adjustment Helper export

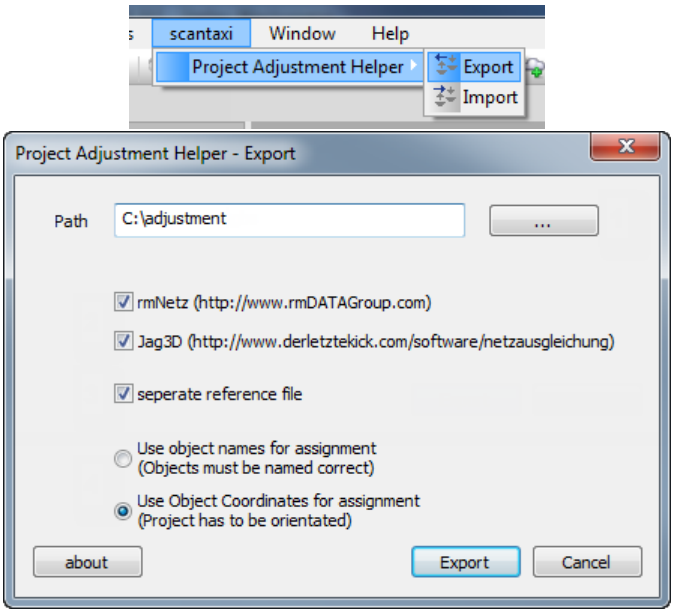

Figure 5: Prepare data for adjustment

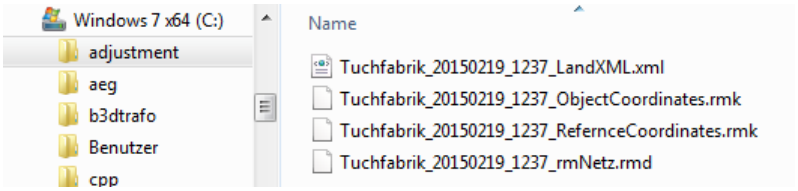

Figure 6: exported data

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6.1.2 adjustment in JAG3D

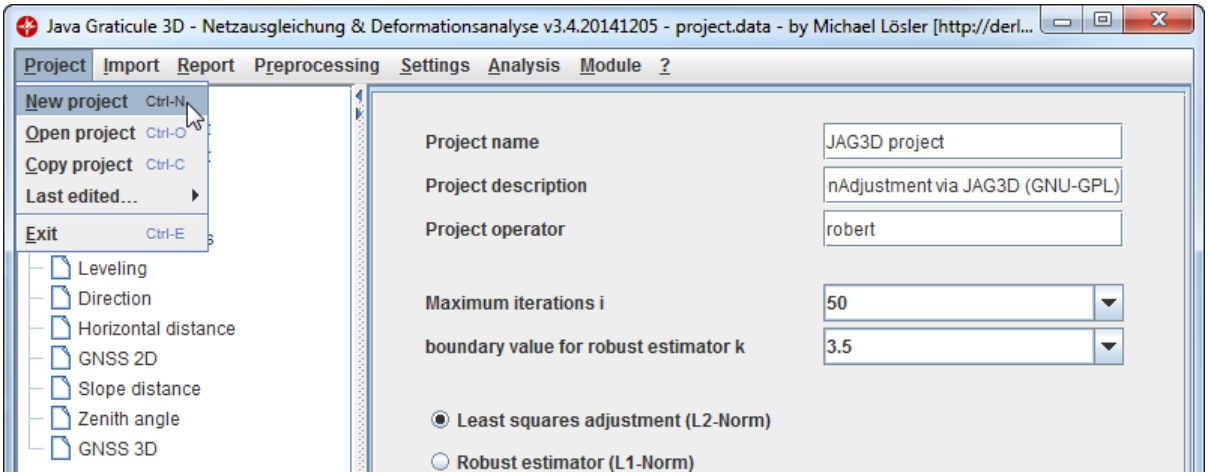

Figure 7: create new project

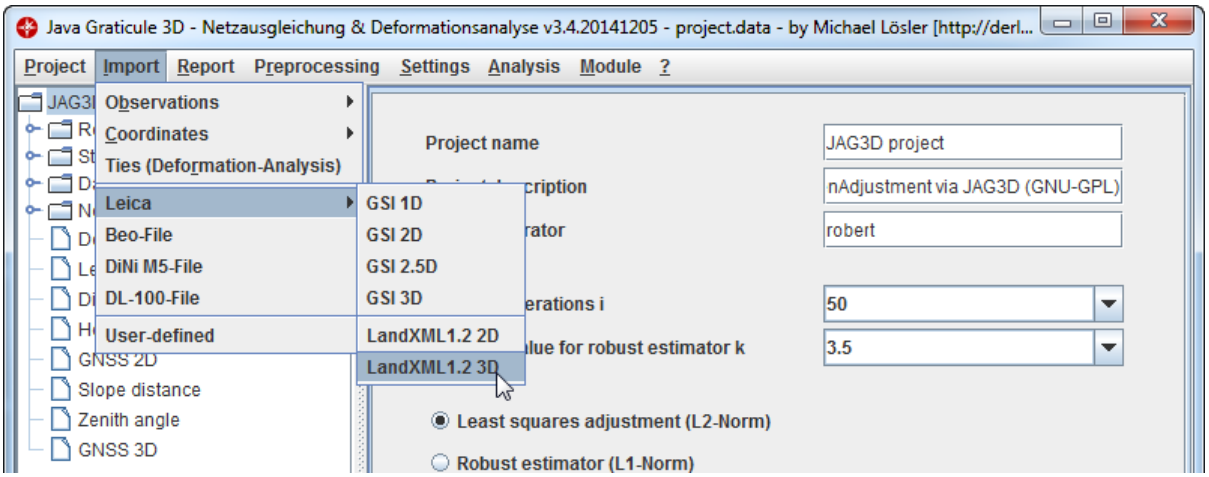

Figure 8: import observations

If containing references are exported into an extra file, they have to be imported also. Otherwise next steps can be bypassed and adjustment can be started. (page 13)

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Project Adjustment Helper

Before importing reference coordinates as datum point group (fig. 10), object coordinates needs to be converted into new point group (fig. 9).

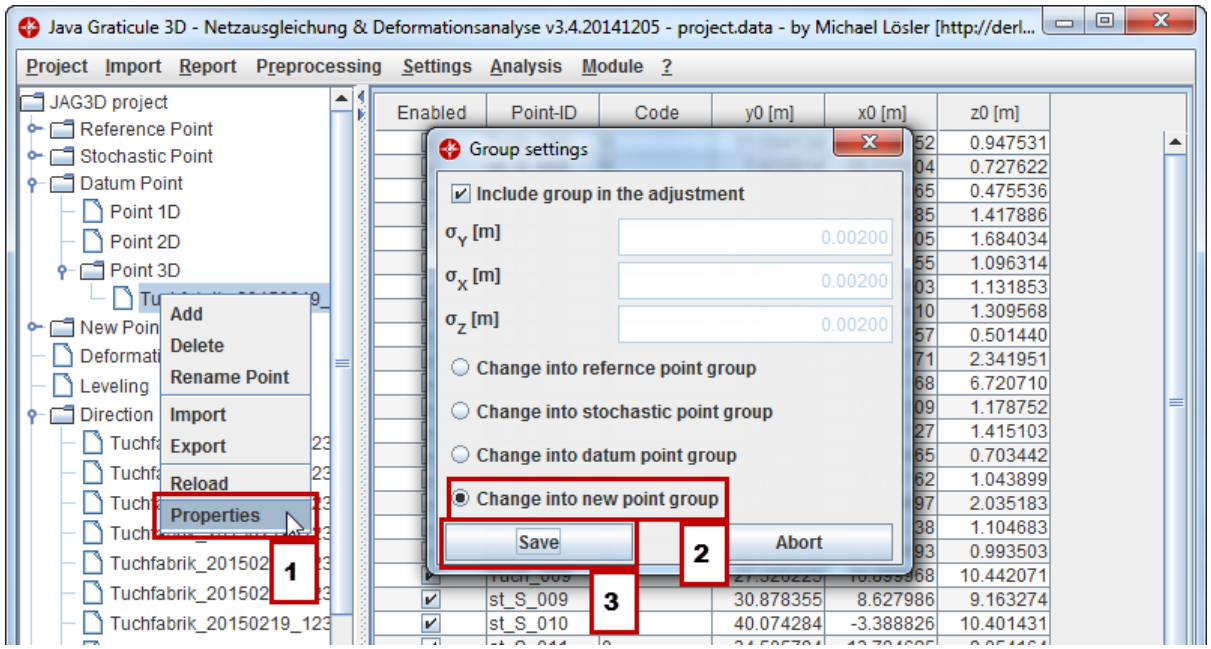

Figure 9: convert object coordinates into new point group

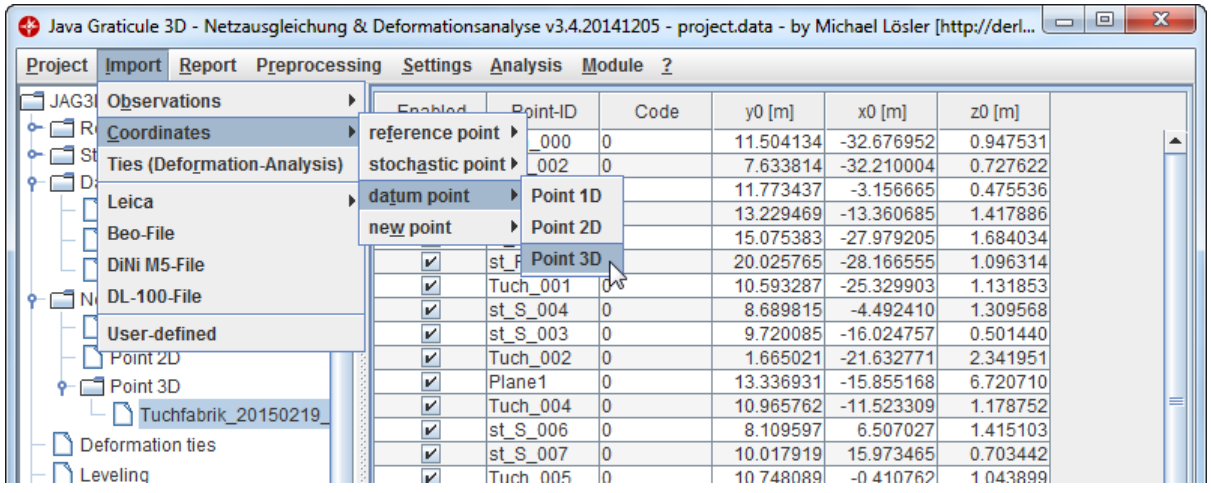

Figure 10: import references

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Project Adjustment Helper

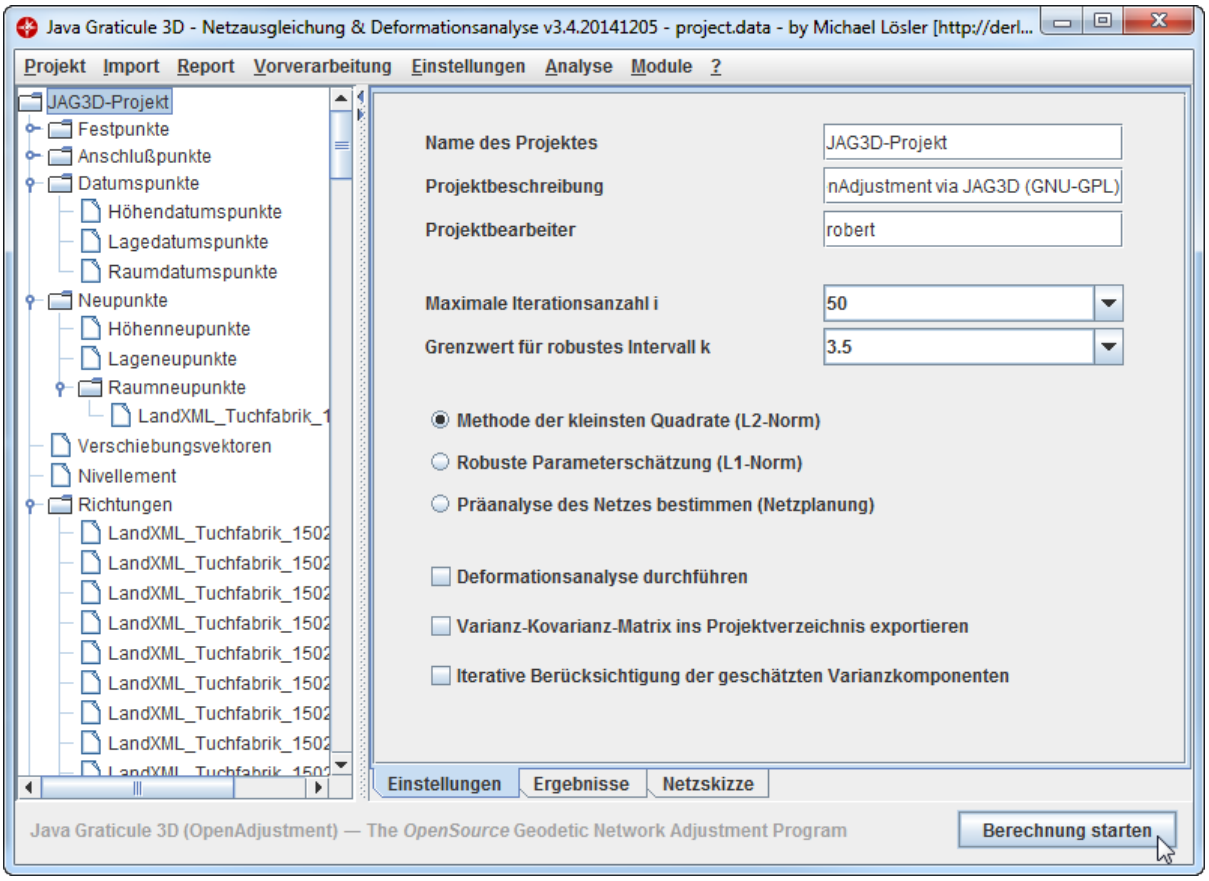

Figure 11: start calculation

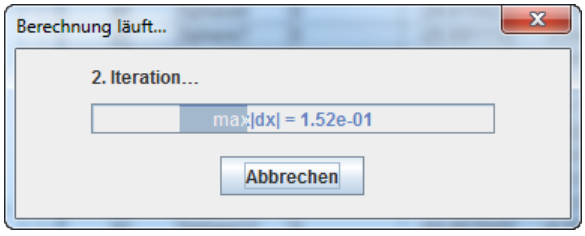

Figure 12: calculation

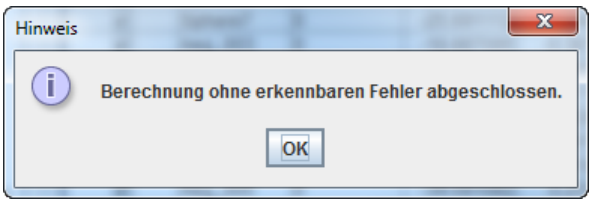

Figure 13: successfull calculation

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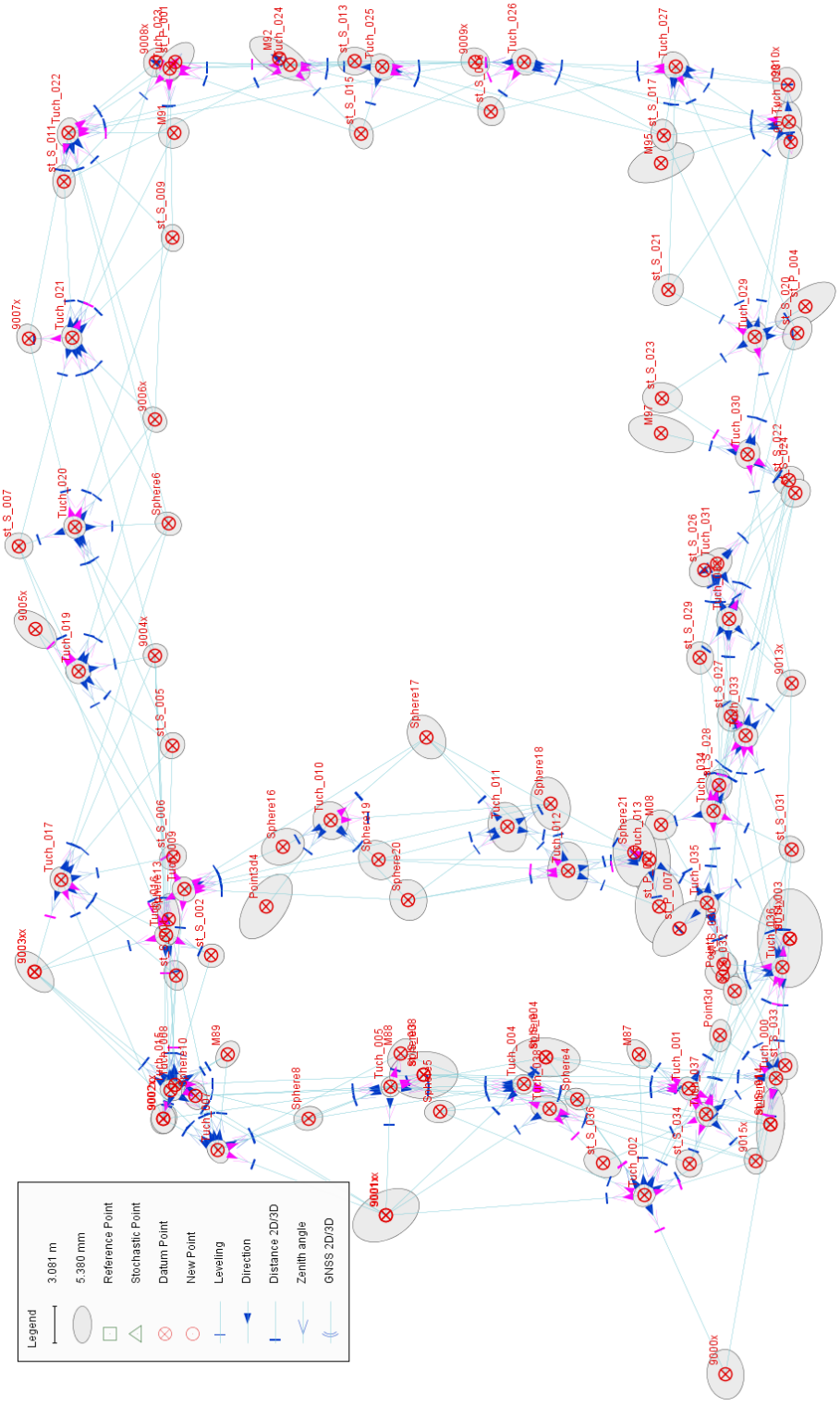

Figure 14: result sketch

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Project Adjustment Helper

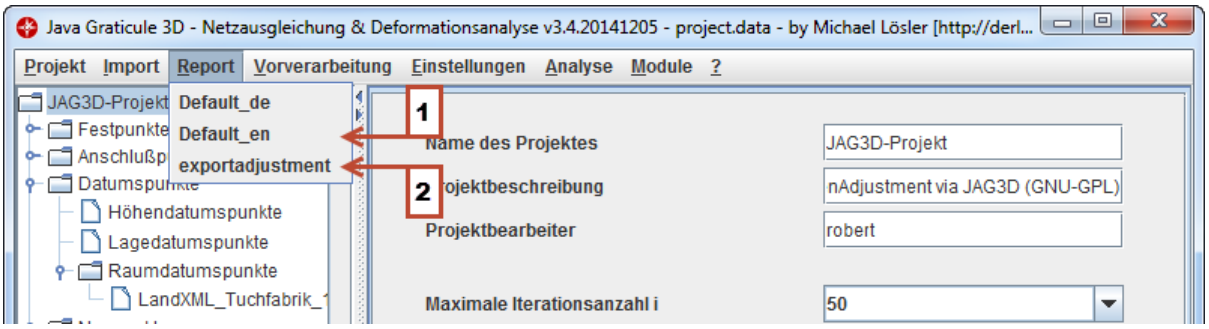

Figure 15: export adjustment

1. create Jag3D report
2. export adjustment for import in SCENE

Java Graticule 3D (JAG3D)	:	v3.4.20140121
Name of project	:	JAG3D project
Description	:	OpenAdjustment via JAG3D (GNU-GPL)
Project operator	:	robert
Date of calculation	:	23.05.2014 - 10:00:56
Kind of network	:	free network - defect 4: t_x t_y t_z r_z
Adjustment type	:	Least square adjustment (L_2Norm)
Projection type	:	No scheme
Flaw dislocation	:	No scheme
Probability value α [%]	:	0.1
Test power (1-β) [%]	:	80.0
Noncentrality parameter λ(α,β)	:	4.132
Sum of squares of errors Ω	:	9655.721
Degree of freedom f = n-u+d = spur(R)	:	437
Average redundancy r_m = 1-u/(n+d)	:	0.539
$\sigma^2_{a\text{-priori}} : \sigma^2_{a\text{-posteriori}}$	:	1 : 22.095
Global test $T_G \in [F_{f,\infty,\alpha'_G/2}, F_{f,\infty,1-\alpha'_G/2}] \| H_0$	:	H_0 rejected, because T_G = 22.095 ∉ [0.964, 1.033] (α'_G = 61.1%)
Linearisation proof $\|\hat{i}-f(\hat{u})\|_{max}$	:	6.439e-12

Figure 16: head of the Jag3D report

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Project Adjustment Helper

6.1.3 Project Adjustment Helper import

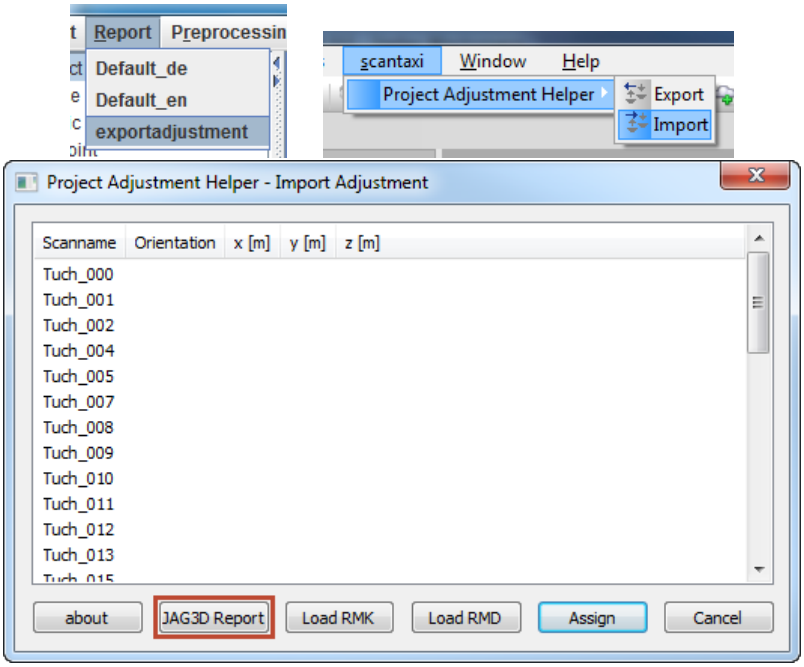

Figure 17: load adjustment in Project Adjustment Helper

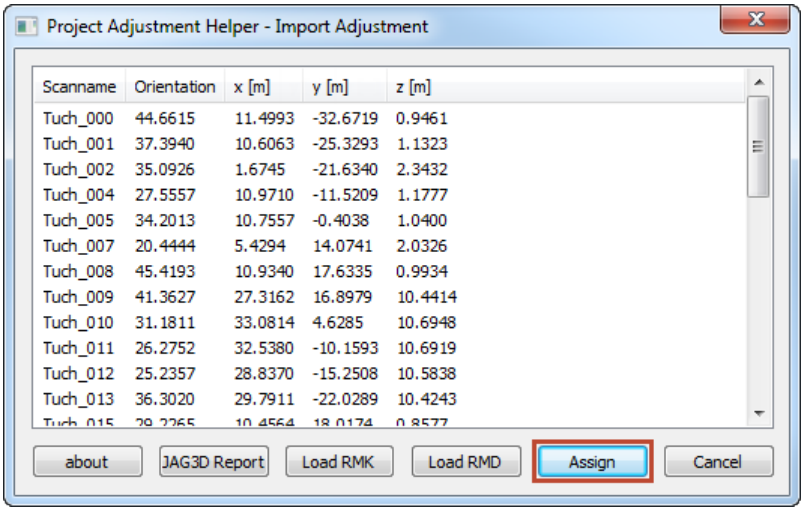

Figure 18: apply adjustment

6.2 rmNetz

Support for rmNetz is only provided on request.

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7 java installation

- Download and install Java Runtime Environment
  `http://www.java.com`
- If starting JAG3D results in an error, add the path of the jre directory to the PATH variable

8 Jag3D Installation

- Download JAG3D
  http://derletztekick.com/software/netzausgleichung
  http://sourceforge.net/projects/javagraticule3d/files/latest
- Unzip the downloaded file
- Get the export template from
  - "SCENE installation directory"
    /Apps/scantaxi_ProjectAdjustmentHelper/Jag3dExportTemplate.zip
- Unzip this template into the JAG3D folder
- If JAG3D "Report/exportadjustment" is available, the template is installed successfully
- JAG3D can be started
  - with a German GUI JAG3D.exe
  - with an English GUI JAG3D_en.bat

9 Known issues

- Unloading the app while running will cause SCENE to crash

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- c This Agreement constitutes the entire Agreement, and supersedes all prior agreements and understandings, oral and written, among the parties to this Agreement with respect to the subject matter hereof.

VIII If a party engages the services of an attorney or any other third party or in any way initiates legal action to enforce its rights under this Agreement, the prevailing party shall be entitled to recover all reasonable costs and expenses (including reasonable attorney's fees before trial and in appellate proceedings).

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